ABSTRACT

A (computational) resource (also referred to as a "component") download process which may include acts of: (i) accepting and/or determining evidence about user-based factors (such as user type classes, usage type classes and probabilities that a particular user belongs to the various user type classes, for example); (ii) accepting and/or determining resource-based factors (such as application classes, whether or not the resource is a component of an application class and if so, whether it is a "core" component or an "optional" component, and usage statistics for the resource, for example); and (iii) maximizing the expected value of downloading resources (or minimizing the expected costs of going back to a resource source). A resource (also referred to as a "component") distribution process which may include acts of: (i) accepting and/or determining user-based factors (such as user type classes, usage type classes and probabilities that a user belongs to the various user type classes, for example); (ii) accepting and/or determining resource-based factors (such as application classes, whether or not the resource is a component of an application class and if so, whether it is a "core" component or an "optional" component, and usage statistics for the resource (such as a frequency of expected use of a resource by a user of a particular user class type), for example); (iii) accepting and/or determining intermediate-storage-facility-based factors

(such as the size and latencies of various intermediate storage facilities, for example); and (iv) minimizing the total expected latencies between requesting and receiving resources. The expected latency may be a function of the number of times a resource is requested and the request-to-receive time latency in each case. It may be determined to distribute resources from a second storage facility to a first storage facility by (a) determining, for each resource, a change in value of storing the resource on a first storage facility versus storing the resource on a second storage facility, (b) determining, for each resource, a change in cost of storing the resource on the first storage facility versus storing the resource on the second storage facility, (c) determining, for each resource, a value density based on the change in value determined in act (a) and the change in cost determined in act (b), and (d) maximizing a total value density given a total size of resources being less than the finite available capacity of the first storage facility. It may be determined that a change in a capacity of an intermediate storage facility would be useful if a ratio of an increased value associated with the change to the cost associated with the change is greater than one.